



# State of New Jersey

DEPARTMENT OF TRANSPORTATION  
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Standards for CADD File Submissions  
95063 ADU

August 23, 1995

MEMORANDUM  
All Design Units

Subject: Standards for CADD File Submissions

The increased use of CADD for the preparation of contract documents has resulted in an ever growing need for these CADD users to be able to exchange electronic data in a way which allows each to perform their tasks efficiently and economically. Also, this electronic data (CADD and GIS files, field survey information, etc.) represents a resource which describes in detail the approximate existing and proposed topography, horizontal and vertical control, design traffic data, accident histories, environmental information, etc., on the State Highway System. Obviously, various parties would benefit from access to this information. The Department will continue to explore ways in which these goals can be accomplished, and will eventually specify a set of standards for the submission of various types of contract information from non-NJDOT groups.

Meanwhile, there are various efforts underway in which Consultants are preparing plans utilizing CADD where a portion of these files will eventually be submitted to one or more of the Department's design units for use in our design efforts. As the state of the industry is such that there are several incompatible CADD file formats in use by the Consultant community, and considering that the Department cannot presently supplement its staff, we must simplify, to the maximum extent possible, the efforts our staff must go through when receiving files from Consultants.

The Department has standardized on the Microstation 5.0 ".DGN" file format for all functions involving computer aided drafting. Therefore, all submissions of CADD graphics files to the Department after October 1, 1995 shall be in this file format.

Further, the Department is currently utilizing the following computer based systems for in-house operations:

- ETI 5.00.04.01 (Electronic Theodolite Interface) - for collection and translation of field survey data.
- InRoads 5.01 (including InSurv(CogoWorks)) - for roadway engineering.
- Microstation 5.0 - for UNIX (and, in the near future, Windows NT) for drafting and computer graphics.
- InterPlot 7.0 - CADD plotting.

Therefore, depending upon the amount of in-house efforts underway for a particular project, the Consultant may be required to submit other types of files in addition to the various ".DGN" graphics files. For example, if an aerial photogrammetry firm is doing work that will eventually be used as input to an in-house InRoads based design project, then the deliverables to the Department would include:

1. Ground survey collected electronically and in the ETI format (".ICS", ".ADF", etc.)
2. Geometry files for baselines and surface modeling information in the InRoads ".ALG" and ".DTM" format respectively.
3. Base plans in the Microstation 5.0 ".DGN" format complying with current NJDOT standards.

The Department recognizes that many consultants use CADD programs other than Microstation. Although we will not require consultants to change over to Microstation at this time, we do recognize that current translation programs are less than perfect. As the Department has not heretofore required that Consultants submit files in Microstation format, Consultant CADD file submissions have not been 100% compatible with our system, and have thus required additional in-house person-hours to correct, affecting project schedules.

Therefore, effective immediately, whenever a Consultant is required to submit electronic files to the Department, the Consultant will be responsible for insuring that the appropriate information is contained therein. If the electronic file or files are created by translating from a different format, the Consultant will be required to verify that the required information translated correctly and completely, or otherwise absorb the costs to remedy the product.

If there are any questions concerning the file formats and standards to be adhered to for a particular project, please contact the Department's Project Manager for more information. The Project Manager will establish a meeting near the beginning of each project to discuss what CADD deliverables are to be expected. They will also be more than willing to set up any necessary meetings between the Consultant and the Department's CADD Support Staff in order to resolve project related CADD questions. An additional meeting would also be called if the state of the industry advances during a period when the project is delayed or on hold.

During October 1995, detailed information will be released on the Department's new metric CADD file format specifications. Also, various CADD files will be released at about this time which will provide such items as cell libraries, color tables, etc. The use of these items by the Consultant will be optional unless specified as required for a particular submission.

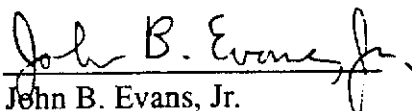
As these different CADD efforts are completed, any new or revised specifications and files will be made available for download at one central location. At present, this location will be the NJDOT - CADD area of the NJDOT Bulletin Board (current phone number 609-530-5151). All Consultants will be expected to access this area at appropriate times to obtain the most up-to-date files, specifications, and information.

Presently, the above information only pertains to Consultant work effecting in-house design efforts. However, there will be clauses included in all new Agreements which will require the Consultant to submit electronic files at various points during the design process for all projects just getting underway. Similar requirements will be added to existing contracts when the Department routinely starts requiring electronic file submissions for all design projects. In future contracts, we will consider the ability of the Consultant to provide electronic deliverables during the Consultant Selection process. Therefore, we highly recommend that Consultants not currently performing their work on CADD seriously consider doing so.

By the turn of the century, we expect that electronic CADD file submissions will be standard practice. By then, we expect that computer object technology will enable the reduction of a particular electronic model into a particular file format to be far less complex than it is today. Future deliverables could possibly include both two (2) and three (3) dimensional files. Portions of this data will likely be included in some form of a highway system database of spatial information.

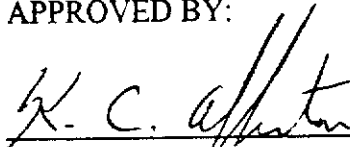
I trust we can rely on your continuing cooperation and support as we work to derive maximum benefit from new technologies as they become available.

RECOMMENDED BY:



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APPROVED BY:



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